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(54) Title: FIBROBLAST GROWTH FACTOR 11

(57) Abstract: The present invention relates to a novel human protein called Fibroblast Growth Factor 11, and isolated polynucleotides encoding this protein. Also provided are vectors, host cells, antibodies, and recombinant methods for producing this human protein. The invention further relates to diagnostic and therapeutic methods useful for diagnosing and treating disorders related to this novel human protein.

## **Fibroblast Growth Factor 11**

### **Field of the Invention**

The present invention relates to a novel human gene encoding a polypeptide which is a member of the Fibroblast Growth Factor family. More specifically, the present invention relates to a polynucleotide encoding a novel human polypeptide named Fibroblast Growth Factor 11, or "FGF-11." This invention also relates to FGF-11 polypeptides, as well as vectors, host cells, antibodies directed to FGF-11 polypeptides, and the recombinant methods for producing the same. Also provided are diagnostic methods for detecting and treating disorders. The invention further relates to screening methods for identifying agonists and antagonists of FGF-11 activity.

### **Background of the Invention**

Fibroblast growth factors are a family of proteins characteristic of binding to heparin and are, therefore, also called heparin binding growth factors (HBGF). Expression of different members of these proteins are found in various tissues and are under particular temporal and spatial control. These proteins are potent mitogens for a variety of cells of mesodermal, ectodermal, and endodermal origin, including fibroblasts, corneal and vascular endothelial cells, granulocytes, adrenal cortical cells, chondrocytes, myoblasts, vascular smooth muscle cells, lens epithelial cells, melanocytes, keratinocytes, oligodendrocytes, astrocytes, osteoblasts, and hematopoietic cells.

Each member has functions overlapping with others and also has its unique spectrum of functions. In addition to the ability to stimulate proliferation of vascular endothelial cells, both FGF-1 and 2 are chemotactic for endothelial cells and FGF-2 has been shown to enable endothelial cells to penetrate the basement membrane. Consistent with these properties, both FGF-1 and 2 have the capacity to stimulate angiogenesis. Another important feature of these growth factors is their ability to promote wound healing. Many other members of the FGF family share similar activities with FGF-1 and 2 such as promoting angiogenesis and wound healing. Several members of the FGF family have been shown to induce mesoderm formation and to modulate differentiation of neuronal cells, adipocytes and skeletal muscle cells.

Other than these biological activities in normal tissues, FGF proteins have been implicated in promoting tumorigenesis in carcinomas and sarcomas by promoting tumor vascularization and as transforming proteins when their expression is deregulated.

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